

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for determining a state-of-charge of a battery, ~~characterized in that comprising the steps of evaluating~~ a transition frequency (f_{\pm}) of an impedance (Z) is evaluated for a battery (40), which is excited by an alternating current, and ~~assigning~~ the transition frequency (f_{\pm}) is assigned to the state-of-charge of the battery (40), ~~whereby wherein~~ the transition frequency (f_{\pm}) is a frequency of the alternating current at which the imaginary part (Z'') of the impedance (Z) of the battery (40) vanishes.

2. (Currently amended) The method according to Claim 1, ~~characterized in that comprising exciting~~ the battery (40) is excited by noise signals which are generated by the loads (10) in ~~the~~ a power net which comprises the battery (40), and/or by an alternating current source (20) contained in the power net.

3. (Currently amended) The method according to ~~one or both of Claims~~ ~~claim 1 and 2, characterized in that comprising measuring~~ the alternating voltage drop at the battery (40) is measured.

4. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that Claim 1, comprising measuring~~ the intensity of the alternating current flowing through the battery (40) is measured.

5. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that Claim 1, comprising determining~~ a phase difference between a phase of an alternating voltage and a phase of alternating current is determined.

6. (Currently amended) The method according to ~~one or more of the preceding Claims characterized in that Claim 1, comprising determining~~ the transition frequency (f_{\pm}) of the alternating current, at which the phase difference between the phase of the alternating voltage and the phase of the alternating current vanishes, is determined.

7. (Currently amended) The method according to ~~one or more of the preceding Claims characterized in that Claim 1, comprising determining~~ the complex impedance (Z) of the battery (40) is determined.

8. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that~~ Claim 1, comprising determining the frequency (f_s) of the alternating current, at which an imaginary part of the complex impedance (Z) vanishes, is determined.

9. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that~~ Claim 1, comprising varying a frequency (f) of the alternating current, exciting the battery (40), is varied.

10. (Currently amended) The method according to ~~one or more of the preceding Claims characterized in that~~ an operating temperature of the battery (40) is taken into consideration in Claim 1, wherein the assignment of the transition frequency (f_s) to the state-of-charge (SOC) is a function of the operating temperature of the battery.

11. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that~~ an intensity of a direct current flowing through the battery (40) is taken into consideration in Claim 1, wherein the assignment of the transition frequency (f_s) to the state-of-charge (SOC) is a function of an intensity of a direct current flowing through the battery.

12. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that~~ an aging status of the battery (40) is taken into consideration in Claim 1, wherein the assignment of the transition frequency (f_s) to the state-of-charge (SOC) is a function of the aging status of the battery.

13. (Currently amended) The method according to ~~one or more of the preceding Claims, characterized in that~~ Claim 1, comprising determining an aging status of the battery (40) is determined.

14. (Currently amended) A device for determining a state-of-charge of a battery, characterized in that it comprises comprising a means an element for the determination of determining a transition frequency (f_s) of an impedance (Z) of a battery (40), which is excited by an alternating current, and a calculation unit (120) for the assignment of assigning the transition frequency (f_s) to the state-of-charge of the battery (40),

where the transition frequency (f_{\pm}) is a frequency of the alternating current at which the imaginary part (Z'') of the impedance (Z) of the battery (40) vanishes.

15. (Currently amended) The device according to Claim 14, ~~characterized in that it comprises~~ comprising a variable alternating current source (30).

16. (Currently amended) The device according to ~~one or both Claims 14 and 15 characterized in that~~ Claim 14, wherein the means element for the determination determining of the transition frequency (f_{\pm}) comprises a sensor (50) for the measurement of an alternating voltage drop at the battery (40).

17. (Currently amended) The device according to ~~one or more of Claims 14 to 16, characterized in that~~ Claim 14, wherein the means element for the determination determining of the transition frequency (f_{\pm}) comprises a sensor (50) for the measurement of the intensity of an alternating current flowing through the battery (40).

18. (Currently amended) The device according to ~~one or more of Claims 14 to 17, characterized in that~~ Claim 14, wherein the means element for the determination determining of the transition frequency (f_{\pm}) comprises at least a variable frequency filter (80, 90, 150) for filtering the measured current and voltage signals.

19. (Currently amended) The device according to ~~one or more of Claims 14 to 18, characterized in that~~ Claim 14, wherein the means element for the determination determining of the transition frequency (f_{\pm}) comprises a phase comparator (100), which determines the phase difference between the filtered current and voltage signals.

20. (Currently amended) The device according to ~~one or more of Claims 14 to 19, characterized in that~~ wherein the means element for the determination determining of the transition frequency (f_{\pm}) comprises a control unit (110), which scrutinizes the phase difference and modifies a transmitted frequency of the frequency filter (80, 90) and/or a frequency of the alternating current source (30), till the phase difference is null.

21. (Currently amended) The device according to ~~one or more of Claims 14 to 20, characterized in that~~ the means element for the determination determining of the

transition frequency (f_s) comprises a ~~means~~ (160) unit for the Fourier Transformation of the measured current and voltage signals.

22. (Currently amended) The device according to ~~one or more of Claims 14 to 21, characterized in that~~ Claim 14, wherein the ~~means~~ element for the ~~determination~~ determining of the transition frequency (f_s) comprises an analysis unit (170) for ~~analysing~~ analyzing the transformed signals and determining a frequency for which an imaginary part (Z'') of an impedance (Z) of the battery (40) vanishes.

23. (Currently amended) The device according to ~~one or more of Claims 14 to 22, characterized in that~~ it comprises Claim 14, comprising a sensor (70) for measuring an operating temperature of the battery (40).

24. (Currently amended) The device according to ~~one or more of Claims 14 to 23, characterized in that~~ it comprises Claim 14, comprising a sensor (60) for measuring the intensity of a direct current flowing through the battery (40).

25. (Currently amended) The device according to ~~one or more of Claims 14 to 24, characterized in that~~ Claim 14, wherein the calculation unit (120) comprises calculation specifications for the ~~assignment of~~ assigning the transition frequency (f_s) to the state-of-charge of the battery (40) for several operating temperatures of the battery (40).

26. (Currently amended) The device according to ~~one or more of Claims 14 to 25, characterized in that~~ Claim 14, wherein the calculation unit (120) comprises calculation specifications for the ~~assignment of~~ assigning the transition frequency (f_s) to the state-of-charge of the battery (40) for several intensities of the direct current flowing through the battery (40).

27. (Currently amended) The device according to ~~one or more of Claims 14 to 26, characterized in that~~ Claim 14, wherein the calculation unit (120) comprises calculation specifications for the ~~assignment of~~ assigning the transition frequency (f_s) to the state-of-charge of the battery (40) for several aging status of the battery (40).

28. (Currently amended) The device according to ~~one or more of Claims 14 to 27, characterized in that it comprises~~ Claim 14, comprising a display device (130) for displaying the state-of-charge (SOC) of the battery.